

**Claims**

What is claimed is:

1. A valve stem seal assembly for sealing a valve stem and valve guide having a chamfer, said valve stem seal assembly comprising:  
a retainer including a step; and  
a sealing element disposed within the retainer and having a first portion with a first sealing lip for sealing a valve stem, and a second portion with a second sealing lip for sealing a chamfer of a valve guide,  
wherein the step exerts a compression force,  $F$ , against the second sealing lip, thereby sealing the second sealing lip against the chamfer of the valve guide.
2. The valve stem seal assembly according to Claim 1, wherein the compressive force is substantially perpendicular to a surface of the chamfer.
3. The valve stem seal assembly according to Claim 1, wherein the retainer includes one or more installation pads for providing a frictional force against the valve guide to prevent vertical movement of said valve stem seal assembly.
4. The valve stem seal assembly according to Claim 1, wherein said valve stem seal is bonded to said retainer.
5. The valve stem seal assembly according to Claim 1, wherein said sealing element is made of an elastomeric material.
6. A valve stem seal assembly for sealing a valve stem and valve guide having a chamfer, said valve stem seal assembly comprising:  
a retainer including a step and one or more installation pads; and  
a valve stem seal disposed within the retainer and having a first portion with a first sealing lip for sealing a valve stem, and a second portion with a second sealing lip for sealing a chamfer of a valve guide,

wherein the step of the retainer exerts a compression force,  $F$ , against the second sealing lip to seal the second sealing lip against the chamber of the valve guide, and

wherein the one or more installation pads exerts a frictional force against the valve guide to prevent movement of said valve stem seal assembly.

7. The valve stem seal assembly according to Claim 6, wherein the compressive force is substantially perpendicular to a surface of the chamfer.

8. The valve stem seal assembly according to Claim 6, wherein said valve stem seal is bonded to said retainer.

9. The valve stem seal assembly according to Claim 6, wherein said sealing element is made of an elastomeric material.